

## ABSTRACT OF THE DISCLOSURE

A method of manufacturing an insulating layer that ensures reproducibility across  
5 like manufacturing apparatus. The insulating layer is formed on the substrate by  
(a) flowing an oxidizing gas at an oxidizing gas flow rate, (b) flowing a first carrier  
gas at a first carrier gas flow rate while carrying a first impurity including boron  
flowing at a first impurity flow rate, (c) flowing a second carrier gas at a second  
carrier gas flow rate while carrying a second impurity including phosphorus  
10 flowing at a second impurity flow rate, and (d) flowing a silicon source material at  
a silicon source flow rate. The second carrier gas flow rate is greater than the first  
carrier gas flow rate.